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Volume Author/Editor: John F. Kain and John M. Quigley

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Home Ownership, Home Purchase, and Household Mobility

Analyses of the determinants of home ownership among urban households are complicated by the dual nature of owner-occupied housing. As with any durable good, the decision to purchase a home is an investment decision. In fact, for most families, equity in owner-occupied homes is the dominant form of wealth. For the lowest income group, equities in single-family, owner-occupied structures account for nearly one-half of all wealth. Although the relative importance of home equities decreases as family incomes increase, home equities accounted for more than one-third of the wealth of all U.S. households earning between ten- and fifteen-thousand dollars in 1962.[1]

At the same time, there are clearly consumption aspects of the decision, since renter- and owner-occupied housing are not perfect substitutes. Owner-occupied units tend to be larger, of better quality, and located in better residential environments than rental units. In addition, the stability of tenure insured by owner-occupancy is highly valued by most households. A recent Housing and Home Finance Agency report summarizes these differences:

> The rate of home ownership is perhaps the single most meaningful statistic that can be used to sum up the overall housing conditions under which families live. Home ownership, as opposed to rental status, generally is associated with more amenities, both within the dwelling unit and its environment, more room, pride of ownership, and a certain degree of social status.[2]

[1]D. S. Projector et al., "Survey of Changes in Family Finances," Federal Reserve Technical Paper (Washington, D.C.: Board of Governors of the Federal Reserve System, 1968).

[2]U.S. Federal Housing Administration, *FHA Homes, 1967: Data for States and Selected Areas on Characteristics of FHA Operations Under Section 203* (Washington, D.C.: Federal Housing Administration, Division of Research and Statistics, Statistics Section, 1967).

Because of these differences in owner- and renter-occupied structures, we anticipate that family size and composition, income, assets, and the taste for higher-quality residential environments should affect the probability of home ownership, regardless of investment implications. The discussion in this chapter is limited to the relationship between the socioeconomic characteristics of households and their probability of home ownership and home purchase. The investment, savings, and welfare implications of home ownership are considered in some detail in Chapter 6.

Sherman Maisel, Tong Hun Lee, Guy Orcutt, and Martin David have all published econometric studies of the determinants of home ownership and purchase.[3] David presents cross-classifications of ownership rates by income class, age, and marital status. His tabulations indicate that ownership rates increase with the age of the head of the household. He also finds ownership rates are greater for married than for single individuals, and are greater still for married couples with children. David attributes this relationship to differences in the available supply of renter- and owner-occupied housing.

The Maisel, Lee, and Orcutt analyses employ similar statistical techniques to analyze the probability of home ownership and home purchase for a sample of individual households. Maisel's analysis is based upon a sample of 3,821 individual resident households of large western U.S. metropolitan areas, as reported by the 1960 Census (the One-in-One-Thousand Census tape). Maisel obtains estimates of the probability of home ownership from ordinary least-squares regressions on a binary dependent variable (1 = homeowner, 0= renter), using nine independent variables. Similarly, he estimates the probability of home purchase for the same sample by regressing a home purchase variable (1 = home purchase in the past year, 0 = otherwise) upon the same set of nine explanatory variables. The nine explanatory variables used by Maisel in both regressions include two dummy variables for household types (couples and widowed heads), three dummy variables for age of head, three family-size variables, and household income.

For the probability of ownership, Maisel's findings indicate that: (1) widows are slightly less likely to own than married couples, but both are far more likely to be homeowners than are single people; (2) the proba-

[3]Sherman J. Maisel, "Rates of Ownership, Mobility, and Purchase," in *Essays in Urban Land Economics* (Los Angeles: Real Estate Research Program, University of California, 1966), pp. 76–108; Tong Hun Lee, "Demand for Housing: A Cross-Section Analysis," *Review of Economics and Statistics* 45, no. 2 (May 1963): 190–96; Guy H. Orcutt et al., *Microanalysis of Socioeconomic Systems* (New York: Harper Bros., 1961); Martin David, *Family Composition and Consumption* (Amsterdam: North-Holland Publishing Co., 1962).

bility of owning increases monotonically with both age of head of household and household size; and (3) the probability of home ownership increases with income but only by a small amount, approximately 1.5 percentage points for each thousand-dollar increase in family income.

Only income and three other variables have coefficients significantly different from zero in the probability-of-purchase model. These significant coefficients indicate that the probability of purchase is marginally higher for couples and slightly lower for families whose head is older than forty-five. The probability of purchase is relatively insensitive to annual income; a ten-thousand-dollar increase in annual income is associated with only a 2 percentage point increase in the probability of purchase.

Lee's model of the probability of home purchase, based upon the 1958 Survey of Consumer Finances, includes a far more elaborate specification of the socioeconomic variables believed to affect purchase behavior. The binary dependent variable in his analysis is whether the sampled households purchased a home within the past year. His regression equations include three variables describing the occupation of the head of the household; four variables indicating the geographical region and the type of community in which the household resides; variables for the years of education, race, and sex of the head of the household; the household's disposable income; and a dummy variable for initial home ownership.

Lee's results for the probability of home purchase are even less informative than Maisel's. Just one variable, initial home ownership, has a coefficient that differs from zero at the 5 percent level. The only firm conclusion of Lee's analyses is that householders who currently own their homes are less likely to purchase another home in the next year.

The analyses of the probability of home ownership and purchase presented in this chapter improve upon these previous attempts in several ways. First, the specification of the independent variables explicitly incorporates the interactions between the marital status and age of the head of the household and the size of the family, using the notion of the life cycle. Second, the analysis uses the concept of conditional probabilities to depict relationships between tenure choice and mobility in a fashion that is more useful analytically. Finally, the econometric technique employed can be expected to provide more efficient parameter estimates.[4]

[4]All the regression results in this chapter have been estimated by generalized least-squares. It is assumed that the true probability of home ownership (or home purchase) is a linear function of the independent variables. The observed binary variables (for example, 1

THE LIFE CYCLE

The life-cycle concept is a useful way of representing several interactions between age, family type, and household size that affect the housing choices of the urban population. The life-cycle concept describes several stages experienced by the typical household—stages which correspond to different housing needs. David, in his analysis of family composition and consumption,[5] classifies households into eight categories in terms of their stage in the life cycle. These categories are:

1. head younger than 45, single;
2. head younger than 45, married, no children;
3. head younger than 45, married, with young children;
4. head younger than 45, married, with older children;
5. head 45 or older, single;
6. head 45 or older, married, no children;
7. head 45 or older, married, with children;
8. all other households.

Although David's classification scheme can be criticized on a number of grounds, it does capture much of the life-cycle behavior of urban households. It does not, however, provide very much detail about the composition of families with children. For this large and important group, it ignores family size altogether.

In an effort to increase the level of detail for those households with children, we have modified David's classifications by combining his categories 3, 4, and 7, and enriching the description of those households with children. The resulting family-type–age interaction, or life-cycle, variables used in this analysis are: *(a)* single persons (living alone or in groups) under 45 years of age, *(b)* singles over 45 years of age, *(c)* couples without children with heads of household under 45 years of age, *(d)* couples with heads of household over 45 years of age, and *(e)* typical families (individuals or married couples with children). Typical families are further described in terms of age of head, family size, and the number of school-age children; and by dummy

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= own, 0 = rent) are equal to the true probability of home ownership plus a random error. Since the variance of the random errors is not constant, ordinary least-squares estimation of this model still provides consistent parameter estimates, but their sampling variances are needlessly high. This problem of heteroscedasticity can be eliminated by estimating the model through generalized least-squares. The generalized least-squares estimates are obtained by weighting each observation by $[\hat{P}\ (1 - \hat{P})]^{-\frac{1}{2}}$, where $\hat{P}$ is the value of the probability predicted by ordinary least-squares (A. S. Goldberger, *Econometric Theory* [New York: John Wiley and Sons, 1964]).

[5]David, *Family Composition and Consumption.*

variables for (1) those headed by a female less than 45 years of age and (2) those headed by a female more than 45 years of age.

In addition to these family characteristics, we expect that home ownership and home purchase will be related to income and employment experience. Thus, household income, years on current job (for head) and years of education (of head) are also included as independent variables. We postulate that the probability of ownership will increase with years of education and with annual income.

Home ownership is cheaper than renting for most households planning to live in the same house for more than three and one-half years.[6] The years-on-current-job variable is included to proxy both these financial-return aspects of job stability and the positive relation between regular employment and savings. Three dummy variables are included to describe the employment structure of the household. They are: retired, with a value of 1 for retired heads (zero otherwise); unemployed, with a value of 1 if no one in the household is employed and the head is not retired; more than one member employed, with a value of 1 if more than one member is employed full time. In addition, the race of the household is included as a dummy variable with a value of 1 for nonwhite households.

HOME OWNERSHIP, HOME PURCHASE, AND HOUSEHOLD MOBILITY

Although home ownership is a common form of tenure for American households (more than 63 percent of all United States families owned their dwelling units in 1970)[7] the frequency of home purchase for any household is rather low. Few households make more than two or three home purchases during their existence. Thus, from an econometric point of view, the only hope of isolating those factors which influence home purchase is to develop a model which applies to those few discrete points in the household's life cycle when it makes an active choice of tenure type.

Our revised theory of residential location provides a convenient basis for addressing this question. If we assume that residential-location decisions are taken in response to changes in employment location (the workplace-dominance assumption), changes in the size and composition

[6]This conclusion is reached by Shelton in an analysis using alternative interest rates, maintenance, carrying and transaction costs, and rates of inflation (John P. Shelton, "The Cost of Renting Versus Owning a Home," *Land Economics* 44, no. 1 [Feb. 1968]: 59–72).

[7]U.S. Bureau of the Census, *Statistical Abstract of the United States: 1971,* No. 1109 (GPO, 1971), p. 672.

of the household (life cycle), changes in income, and changes in neighborhood characteristics, then the probability of moving for a given household will be independent of the tenure status of the household after the move is made. Thus, the probability of home purchase (P_p) can be decomposed into a marginal probability—the probability of moving during a given period (P_m); and a conditional probability—the probability of purchase, given a household move ($P_{p/m}$).

$$P_p = P_{p/m} \cdot P_m \tag{5-1}$$

From this viewpoint, the probability of purchase is not the passive day-to-day continuance of tenure relationships but is instead an active choice made at those discrete points in time when the household changes its residence. The probability of home ownership, on the other hand, reflects the tenure status of a household with given socioeconomic characteristics at a single point in time.

The following three sections present the analysis of the probability of home ownership, home purchase, and household mobility for the sample of St. Louis households. Further implications are discussed in the next chapter.

HOME OWNERSHIP

The home-ownership analysis is based on the entire sample of 1,185 households in the St. Louis metropolitan area. Estimates of probability of home ownership equations obtained by both the ordinary least-squares (OLS) and the generalized least-squares (GLS) regression coefficients are presented in Table 5-1. In the OLS regression, 12 of the 18 coefficients are statistically different from zero at the 5 percent level; in the more efficient GLS regression, 11 are significant at this level. The overall pattern of the regression coefficients in Table 5-1 is quite similar between the equations. Several minor inconsistencies do occur, however, and the more prominent of these are mentioned below.

In the OLS regression, the years-employed variable has a coefficient of .009 and a t ratio of 6.1; in the GLS version, its value is less than one-fourth as large, and its t ratio is only 1.9. In contrast, the coefficient for the dummy variable indicating more than one household member employed is more than four times as large in the GLS equation as in the OLS equation, and the t ratio increases from 1.4 to 6.1. Years of schooling is never significant, and its algebraic sign is different in the two estimates. The coefficient of annual income is twice as large in the GLS estimate as in the OLS estimated regression. Both estimates are small, however. The increase in the probability of ownership for each thou-

TABLE 5-1
Ordinary Least-Squares and Generalized Least-Squares Estimates of the Probability of Home Ownership

Variables	OLS	GLS
Race	−.150[1]	−.088[1]
Income	.013[1]	.026[1]
Education	.005[4]	−.006[4]
Years on current job	.009[1]	.002[3]
Retired	.241[1]	.231[1]
None employed	−.035	−.011
More than one employed	.041[4]	.171[1]
Families		
Age	.033[2]	.002[2]
Number of persons	−.136[1]	−.156[1]
Number of children	.045[1]	−.013
Female head < 45 years	−.270[1]	−.007
Female head > 45 years	−.188[2]	−.192[2]
Household types		
Single female < 45 years	−.312[1]	−.403[1]
Single female > 45 years	−.147[1]	−.295[1]
Single male < 45 years	−.172[3]	−.277[2]
Single male > 45 years	−.040	−.108[4]
Couple, head < 45 years	−.306[1]	−.213[1]
Couple, head > 45 years	.032	−.004
Constant	.302[1]	.409[1]
R^2	.213	.826

NOTE: Table notes indicate significance of t ratios for coefficients (two-tailed test):

[1] > .01.
[2] > .05.
[3] > .10.
[4] t ratio greater than 1.0.

sand-dollar increase in income is 1.3 in the GLS estimate and 2.6 percent in the OLS; the OLS estimate is quite close to the value obtained by Maisel.[8]

The signs and relative magnitudes of the life-cycle variables are very similar in the OLS and GLS equations. Of the six dummy variables describing household types, four have statistically significant coefficients in the GLS regressions. In all cases, they indicate that smaller house-

[8]Maisel, "Rates of Ownership."

holds are less likely to be home owners than are families with children. Single males and single females under 45 and married couples headed by a person under 45 are far less likely to be homeowners than the same types of households headed by persons over 45. Of small households headed by persons under 45, single females are least likely to be homeowners. Of those whose heads are over 45 years of age, married couples are most likely to be homeowners. Similarly, in the OLS equations, female-headed families with children, especially those headed by a female under 45 years of age, are less likely to be homeowners than are male-headed households.

For families with children, the age of the head of household has a statistically significant, but quantitatively small, effect on the probability of ownership. The other age-related variable, the retirement dummy, is also statistically significant, but, unlike age, its magnitude is quite large. The coefficient of the retirement dummy in the GLS estimate indicates that, ceteris paribus, a household headed by a retired member is 23 percentage points more likely to be a homeowner than one headed by a person who is still in the labor force. By comparison, an additional ten years of age increases the probability of ownership by only 3 percent. Taken together, these results indicate that across household types, older households are consistently more likely to be homeowners than are younger households. In addition, when annual income declines through retirement from the labor force, households with retired heads are more likely to be homeowners than their income and other socioeconomic characteristics would indicate.

Several factors associated with age are undoubtedly responsible for this finding. First, a household's opportunity to save the resources required to purchase a home increases with age. Thus, for any given type of household, aging will increase the pool of those who can afford the initial investment required for home ownership.

In addition, it appears that many older homeowners are reluctant to sell their homes even when the units no longer correspond well to their space needs. As a result, many owner-occupants, particularly older ones, consume nonoptimal, i.e., too large or too costly, amounts of housing. In part, this may reflect the monetary costs of moving. To a greater extent, however, the reluctance of many older owners to move and become renters is the result of acquired attachments to a particular home, a neighborhood, or a community. For the couple who have lived in the same house for twenty-five years, who have raised a family in that house, who have close friends in the neighborhood, and who have paid off the mortgage, the decision to move to smaller quarters in a strange neighborhood is not easy. As long as they retain their health and can afford the expense, and as long as the characteristics of the neighbor-

hood do not change, they are likely to remain. In addition, as is discussed in Chapter 6, there are several reasons related to financing and capital accumulation why households may not move to smaller rental units as quickly as family composition and socioeconomic status would suggest.

The probability of home ownership is relatively insensitive to current income or years on current job, taken separately, and it is even less sensitive to years of education. Illustrative calculations indicate, for example, that for the generalized least-squares estimates, the combined influence of an additional five-thousand dollars in annual income, two more years of education, and an additional three years of continuous employment increases the probability of home ownership by about only 12 percentage points, as compared with an otherwise identical household. Using the ordinary least-squares regression estimates, the same calculations yield a difference of 10 percentage points.

For typical families, two of the three size-related variables (number of persons, number of children, and additional employed adults) are significant in both the ordinary least-squares and generalized least-squares equations. In both cases, once the effects of school-age children and additional employed adults are taken into account, the probability of home ownership declines with further increases in family size. It appears that larger families' demands for living space are more than offset by the increased consumption of other necessities. The positive coefficient for school-age children in the ordinary least-squares regression may be due to both the demand for the additional space, usually associated with owner-occupied units, and the demand for the better residential environments (e.g., better local schools) found in owner-occupied neighborhoods. The coefficient of the school-age-children variable is negative in the generalized least-squares model, but its magnitude is less than one-tenth that of the coefficient of family size.

The coefficients of the race dummy are negative in both the OLS and the GLS equations, indicating that black households are less likely to be homeowners than otherwise identical white households.

To summarize, the home-ownership equations indicate that current tenure is much more closely related to life-cycle and family-size variables than to income, education, or labor-force experience.

HOME PURCHASE AND MOBILITY

One reason why previous investigations of the probability of home purchase have proved so disappointing is that the purchase of a home is such a rare event for the population as a whole. A family seldom

purchases more than two or three homes in a lifetime, so the probability of its purchasing a house in a given year is small indeed. For example, in Lee's sample of households, only 117 out of 2,267 (or about 5 percent) had purchased a home during the previous year. In Maisel's study, less than 9 percent of the households had purchased a house during that time.

To confine the analyses to a group where the chance of observing home purchase is better, we need only consider the way in which purchase decisions are made. When a household first chooses a dwelling unit, it selects, on the basis of relative prices and preferences, that unit which maximizes its welfare. After the location decision is made, subsequent events may change the household's preference patterns (i.e., shift the demand curves for types of housing).

In addition, selected dwelling-unit attributes may change over time; the neighborhood may improve or decline; household members may change jobs (or the same job may involve a changed location), with a resultant shift in the journey to work associated with the chosen dwelling. Over time, therefore, individual dwelling units may come to be less desirable relative to other units in terms of the household's preferences and financial circumstances.

When the difference in satisfaction between the household's present dwelling and a more optimal dwelling becomes larger than the costs of searching out and moving to another unit, the household will move to the preferred unit. At this point, as a component of its decision calculus, the household is faced with a tenure choice.

Since the type of tenure associated with a particular dwelling unit is fixed for all practical purposes, i.e., it is practically impossible to change tenure without moving, the probability of home purchase during a specified period can be reduced to the marginal and conditional probabilities shown in Equation 5-1. We shall now turn our attention to estimates of the probability of moving and the conditional probability of purchase.

MOBILITY

For each of the 1,185 sample observations, information was gathered on whether the household had moved one or more times in the past three years. The mobility status of the household is thus denoted by a binary variable (1 = moved at least once in the previous three years, 0 = did not move in the three previous years). In addition, for each moving household, current tenure type establishes whether the household's active choice after the move, i.e., the conditional probability of purchase given a household move, was to purchase or to rent.

Equations which relate the probability of moving during the previous three years to the same set of socioeconomic household characteristics used to explain home ownership are shown in Table 5-2. The first column presents estimates for all households, and the remaining three columns present the coefficients estimated for three stratifications by

TABLE 5-2
Generalized Least-Squares Estimates of the Probability of Moving for All Households: Prior Owners, Prior Renters, and Prior Tenure Unknown

Variables	All	Prior Owners	Prior Renters	Prior Tenure Unknown
Race	−.033[3]	−.089[1]	.044	−.084[4]
Income	−.002	−.002	.000	.003
Education	−.000	.004[4]	.007	.003
Years on current job	−.002[3]	−.004[1]	−.004[2]	−.012[1]
Retired	−.143[1]	−.102[1]	−.084[4]	−.297[2]
None employed	.005	.150[4]	−.042	.071
More than one employed	−.078[1]	−.052[2]	−.057[4]	−.089[4]
Families				
Age	.000	−.002[4]	.000	.001
Number of persons	.073[2]	.096[2]	.086	.043
Number of children	−.015[4]	−.033[1]	−.022	−.021
Female head < 45 years	.112[3]	−.105[3]	.088	–
Female head > 45 years	.209[2]	−.007	.134	–
Household types				
Single female < 45 years	.139[3]	.130[4]	.140	–
Single female > 45 years	.091[2]	.046[4]	−.092	–
Single male < 45 years	.060[4]	.011	.027	–
Single male > 45 years	−.016	−.065[3]	−.089	–
Couple, head < 45 years	.150[1]	−.049	.209[4]	.097
Couple, head > 45 years	−.032[4]	−.062[2]	−.095	.143[4]
Prior tenure				
Prior renter	−.359[1]	–	–	–
Prior owner	−.562[1]	–	–	–
New household	.160[1]	–	–	–
Constant	.778[1]	.188[1]	.349[1]	.878[1]
R^2	.882	.116	.092	.106
Number of sample observations	1,185	453	434	217

NOTE: Table notes indicate significance of t ratios for coefficients (two-tailed test):
[1] > .01.
[2] > .05.
[3] > .10.
[4] t ratio greater than 1.0.

prior tenure status. In each case, only the generalized least-squares estimates are shown.

For the entire sample of St. Louis households, 39.3 percent had moved in the previous three years—42.7 percent of the black households and 37.8 percent of the white households. The mobility of homeowners is lower than the mobility of renters. In part this is explained by the different socioeconomic characteristics of renters and owners. In addition, as we discuss in Chapter 6, moving costs are substantially higher for owners than for renters. Household moving rates by prior tenure break down in the following way:

Prior owners (453 households)	11.7 percent;
Prior renters (434 households)	37.8 percent;
New households (81 households)	98.8 percent;
Prior tenure unknown (217 households)	77.9 percent.

The regression coefficients in the first column of Table 5-2 illustrate further differences in mobility associated with prior tenure. The coefficients of the dummy variables signifying prior ownership, prior rental tenure, and new households have the largest t ratios of any included in the equation. The coefficients indicate, for example, that, ceteris paribus, prior owners have a probability of moving which is 56 percentage points lower than that of the excluded (unknown tenure) group.

Only 6 of the remaining 18 coefficients differ significantly from zero at the 5 percent level. The equation indicates that households headed by a retired member and households with several workers have a lower probability of moving in any period. Mobility rates are higher for young couples and for households headed by older females—both single and those with children. For female-headed families with children, this may reflect changes in housing conditions resulting from divorce or the death of a husband. The coefficients also indicate a slight increase in mobility with increases in household size, holding the number of workers and school-age children constant. This result is surprising, since both the monetary and psychological costs of moving should be higher for larger families.

When the sample is stratified by prior tenure, the coefficients of the socioeconomic variables are generally not significantly different from zero for prior renters and households whose prior tenure status is unknown. For both groups, the coefficient of years on current job is negative and significantly different from zero at the 5 percent level. For prior renters, the probability of moving in a three-year period declines by .4 percentage points with each year of employment; and for the "unknown" group, the probability of moving in a three-year period declines by 1.2 percentage points for each year of employment.

The coefficient of the retirement dummy is large, −.30, and significantly different from zero at the 5 percent level. No results are presented for new households, i.e., households formed during the three-year period, since virtually all new household formation involved mobility.

The equation for prior owners includes seven variables that differ from zero at the 5 percent level. As with the prior-renter and prior-tenure-unknown equations, the years-on-current-job and retirement variables are associated with a lower probability of moving. Families with additional members employed and those with school-age children are less likely to move, but after these tendencies are accounted for, the coefficient of family size (natural logarithm of the number of family members) is positive and significant. The coefficients of both younger and older couples are negative, with the latter being significantly different from zero at the 5 percent level.

There are no significant differences in the mobility rates of black and white prior renters, or of blacks and whites in the prior-tenure-unknown category. Black prior owners, however, are 9 percentage points less likely to move during a three-year period than white prior owners. The magnitude of this black-white difference is underscored when one recalls that only 12 percent of all owners moved within the three-year period.

THE CONDITIONAL PROBABILITIES OF PURCHASE

Regression estimates of the conditional probability of purchase were obtained for the subsample of all households who had moved during the preceding three years. This model, shown in Table 5-3, incorporates the same independent variables reported in the home-ownership analysis. Only the generalized least-squares estimates are presented.

The results indicate that married couples are less likely to purchase a home than are families with children, and that younger married couples (in the "without prior tenure" case) are less likely to purchase than older ones. Similarly, young single men or women are far less likely to purchase homes than are male-headed families, but the probabilities of purchase by older single men and women are not statistically different from those for families. The probability of home purchase for female-headed families is lower than that for male-headed families, but the probability of purchase for families with young female heads is, at the same time, substantially higher than that for young singles of either sex and higher than the probability of purchase for young married couples without children for the "without prior tenure" equation.

For families with children, the probability of purchase increases by

TABLE 5-3
Generalized Least-Squares Estimates of the Probability of Purchase for Recent Movers with and Without Prior Tenure

Variables	Without Prior Tenure	With Prior Tenure
Race	−.124[1]	−.091[1]
Income	.017[1]	.013[1]
Education	.011[2]	.003
Years on current job	.001	.002[4]
Retired	−.070[4]	.065[4]
None employed	−.031	−.014
More than one employed	−.012	.002
Families		
Age	.004[2]	.011[2]
Age-squared	–	−.014[1]
Number of persons	−.138[1]	−.113[1]
Number of children	.032[1]	.018[4]
Female head < 45 years	−.145[1]	−.188[1]
Female head > 45 years	−.241[1]	−.206[1]
Household types		
Single female < 45 years	−.324[1]	−.191[2]
Single female > 45 years	−.051	−.183[2]
Single male < 45 years	−.283[1]	−.124[4]
Single male > 45 years	−.057	−.196[3]
Couple, head < 45 years	−.290[1]	−.095[4]
Couple, head > 45 years	−.124[4]	−.111[4]
Prior tenure		
Owner	–	.267[1]
Renter	–	.037[4]
New household	–	−.146[1]
Constant	.126	.122
R^2	.301	.445

NOTE: Table notes indicate significance of t ratios for coefficients (two-tailed test):

[1] > .01.
[2] > .05.
[3] > .10.
[4] t ratio greater than 1.0.

3.2 percentage points for each school-age child. The probability declines at a decreasing rate with increases in family size. The age coefficient indicates that for families who have recently moved, a ten-year increase in the age of the head increases the probability of purchase by about 4 percentage points. Introduction of an age-squared term yields no evi-

dence of nonlinearity. Since the average probability of home purchase by moving households is only 22 percent, the influences of age and life-cycle variables upon purchase decisions are not negligible.

The relationship between family size and number of school-age children and the purchase decision illustrates the substitution between rental and owner-occupied housing caused by family composition. The coefficient of the logarithm of family size is negative and highly significant, indicating that, ceteris paribus, households with larger demands for food, clothing, and basic necessities are less likely to purchase than to rent their dwelling units. However, the positive and highly significant coefficient of the number-of-school-age-children variable suggests that the presence of school-age children increases household demand for residential space (especially lot size) and public goods (e.g., better schools and a more tranquil environment) associated with owner-occupied housing. The interaction of these conflicting tendencies upon the probability of home purchase is illustrated in Table 5-4, which shows the changes in the probability of home purchase associated with different family sizes and numbers of school-age children.

The statistics in Table 5-4 indicate that for larger families, the greater demands for basic necessities, which serve to divert resources from home purchase, are quickly offset by demands for the amenities of home ownership associated with school-age children. Thus, other things being equal, a family of four without school-age children is about 4 percentage points less likely to purchase a home than an otherwise identical three-person family. However, if the family of four includes two children of school age, it is about 2.5 percentage points *more likely* to purchase a home than is a family of three without children. There is, for example, practically no difference in the probability of home pur-

TABLE 5-4
Changes in the Probability of Home Purchase by Family Size and Number of School-Age Children

Number of School-Age Children	Number of Family Members			
	3	4	5	6
0	.000	−.040	−.070	−.095
1	.032	−.008	−.038	−.063
2		.024	−.006	−.031
3			.026	.001
4				.031

NOTE: Base—all probabilities are relative to a family of three with no school-age children.

chase between a family of four with two school-age children and a family of five with three school-age children. However, if the family of five includes a grandmother and only two school-age children, the difference in probability of home purchase is about 3 percentage points.

In Table 5-3, the coefficients of family income and years of education for movers without prior tenure are highly significant, but the magnitudes are rather small. An additional three-thousand dollars in annual income increases the probability of purchase by only about 5 percentage points.

At least one important factor influencing the probability of home purchase is not represented in the probability-of-purchase equation in the first column of Table 5-3. When homeowners move, they are far more likely to purchase than to rent a home, and renters are likely to move from one rental unit to another. In large part, this is due to the fact that owners and renters tend to differ in terms of income, life cycle, and family size—the influences already represented in column one in the probability-of-purchase equation. In addition, however, previous tenure as a homeowner implies the accumulation of capital which may be used as a down payment for another home. Moreover, the treatment of capital gains on the sale of a residence is a powerful inducement for many households to become homeowners within one year of the sale of their former residence.

For the 466 recent movers in the sample, it was possible to establish the prior tenure status of 217 households, including 53 prior owners and 164 prior renters. Eighty additional households were formed during the period and thus had no previous tenure. Information on prior tenure was unavailable for the remaining 169 households. The home-purchase rates for the sample stratified by prior tenure are:

Prior owners	90.9 percent;
Prior renters	21.2 percent;
New households	7.4 percent;
Prior tenure unknown	22.1 percent.

The second equation in the second column of Table 5-3 presents the probability-of-purchase regression when prior tenure is included among the explanatory variables. The dummy variables for prior owners and new households are extremely significant; the coefficients of the life-cycle variables are smaller in magnitude and significance. In addition, there is evidence of a nonlinear relationship between home purchase and age. The coefficients of income and race are slightly smaller but are still highly significant.

Although the introduction of the prior-tenure variables generally reduces the significance of the coefficients of the other variables, a

comparison with the first equation in Table 5-3 indicates that the relative magnitudes of the several coefficients remain very much the same.

In summary, this evidence illustrates that the decision to purchase or to rent, given a household move, is strongly related to the life cycle and family structure of the household and, in addition, that these variables have an independent effect on the purchase decision even after prior tenure of the household is introduced.

In general, despite the regularities observed in the regression equation for prior owners, the model does poorly in explaining mobility decisions for the other prior-tenure categories. This may be because the decision to move is more strongly related to changes in family composition and to changes in employment location and labor-force attachment than to changes in household characteristics per se.

It is, however, possible to use the mobility equations for prior owners and renters shown in Table 5-2, and the probability-of-purchase equations shown in Table 5-4, to trace mobility and tenure relationships throughout the life cycle of the household. For example, to take the simplest case, consider one-thousand households which are formed during the first period, and for whom the probability of moving is virtually 100 percent. If we assume that the heads of these households are white high-school graduates earning ten-thousand dollars per year, aged twenty-five, with five years of experience on their current job; and that the households consist of a married couple (nonworking wife) with one infant, then the proportion purchasing homes during the first three-year period can be estimated from Table 5-3 at 22 percent. If we further assume that socioeconomic conditions remain the same during the next period (age and years on current job increase by three years, but income and household composition are unchanged), the probability-of-moving equations (columns 2 and 3 of Table 5-2) indicate that 51 percent of those who rented during the first three-year period will move (and thus participate actively in the housing market in the second period), but only 24 percent of those who previously purchased will change location. During the third three-year period (assuming that only age, years on current job, and number of school-age children change), 69 percent of those prior owners who moved will purchase another home, but only 46 percent of those movers who previously rented will purchase a home. These mobility and purchase probabilities are summarized for three periods in Figure 5-1, on the assumption that throughout the period, there are *no* socioeconomic or life-cycle changes other than aging.

The calculations summarized in Figure 5-1 illustrate the strong tendency for households to continue as homeowners once home-ownership status is attained. This results both from a decline in mobility and from the preferences and capital accumulation of those who do move.

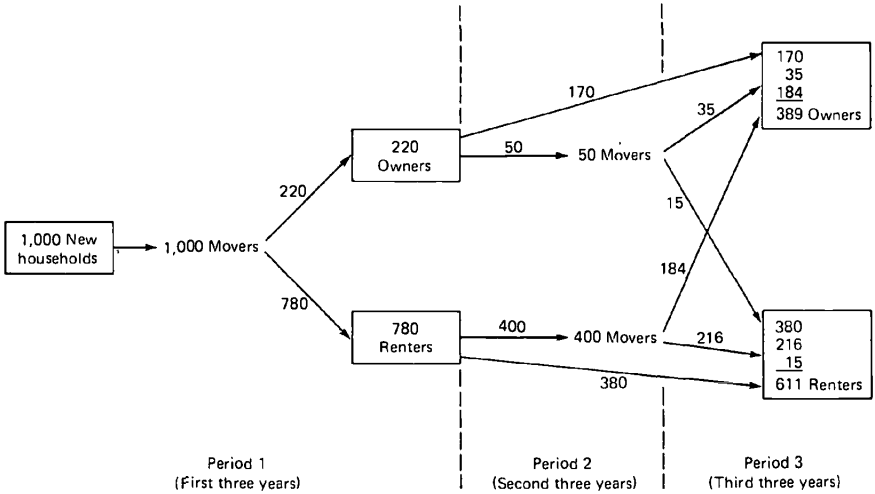

FIGURE 5-1
Mobility and Purchase Probabilities for One-Thousand Households with Identical Given Socioeconomic Characteristics

The chart indicates that for these simple assumptions, 93 percent of those who were homeowners in the previous period continue as homeowners in the next period—the 170 households which do not move and 35 of the movers.

In the dynamic situation, where household characteristics are continually changing—due to marriage, divorce, job and income changes, birth of children, and so forth—the way in which mobility and purchase decisions interact to produce current tenure relationships is, in principle, the same. A vector of household changes can be applied to the starting population; and the mobility, purchase, and tenure positions can be charted over time in this Markovian fashion.

SUMMARY

This chapter initiates the analysis of household income and life-cycle influences on housing decisions by investigating the home ownership, home purchase, and mobility patterns of St. Louis households. The first section presents regression estimates of the effects of income, family size and composition, labor-force attachment, and other sociodemographic variables on the probability that a household will own its home. This analysis reveals that the probability of home ownership

increases with family income and with the education, the age, and the job stability of the head of household. Moreover, the probability of home ownership is larger for families with children than for other types of households, and retired households are far more likely to be homeowners than their income and household composition would suggest.

The analysis of household mobility reveals substantial differences in the probability of moving depending on tenure, that is, depending upon whether the household rents or owns its home. Holding tenure type constant, socioeconomic differences explain far less of the mobility behavior of renters than of owners. For renters, greater job stability and the presence of several workers tend to reduce the probability of moving. Younger couples have a higher probability of moving and retired households have a much lower probability.

Among homeowners, the same variables are important, but in addition, age, family composition, and life-cycle influences are important determinants of mobility.

The analysis of the probability of purchase, conditional upon mobility, indicates that there are substantial differences in the home-purchase behavior of households with different incomes, family size, and family composition. Prior tenure status also strongly effects the probability of home purchase. Part of the effect of prior tenure is no doubt traceable to differences in the tastes and socioeconomic composition of households, but it also no doubt reflects the importance of home equity to household wealth.

Finally, the analysis suggests that black households are systematically less likely to be homeowners or home purchasers than otherwise similar white households. At the same time, the mobility analysis indicates that black households change residences less often than comparable white households. The next chapter considers this finding in greater detail.